Effects of Oil Shocks on the Unemployment: GVAR Approach

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Abstract

Oil is not only one of the most significant and useful consumer goods but also is a remarkable material in energy production all around the world which has a lot of price fluctuation. oil shocks consider as a principal factor of many financial crises and have various effects on economy of countries. Hence, the assessment of price fluctuations on macroeconomic variables such as unemployment seems important. This paper survey the oil price inconstancy on unemployment in 31countries during the period from the second quarter of 1985 to the fourth quarter of 2009 through Global Vector Auto-Regression model.

Results demonstrate except of the rest of W. Europe, there is a positive relationship between oil prices oscillation and unemployment. It should be noted in many area the feedback along with the lag that depends on the ratio of oil cost in national income, reliance level to imported oil, end-users ability to reduce their usage and substitute other sources, gas consumption quantity in economy, effect of higher prices on other energy sources, monetary policies adopt when face with oil price swaging and capability of goverments to apply the vary policies.

Keywords: Oil Shock, Unemployment, GVAR Model

Jel Code: E24, J69, Q43

1. Introduction

Oil price volatility is as a worldwide trouble in recent state and due to the oil function and affiliation of different countries on this valuable material, obviously its price instability is extremely impressive on domestic market and macroeconomic variables such as unemployment. For instance oil price fluctuation in oil-importing

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countries increase production costs, rise fee of goods, services and finally reduce demands, employment, enhance unemployment and therefore incurs stagflation. In fact the oil price changes shifts back aggregate supply curve as a negative supply shock. For that reason it causes both production and employment decline. Inquiry of the impact of oil price changeability on unemployment variable in 31countries during the second quarter of 1985 to fourth quarter of 2009 through global regression model developed by Diz, Dimaoro, Smith (2007) was done in this paper. Regression model used in this study compose of 31 countries that are categorizes as Europe, Latin America, Developed countries, European countries and other parts of the world. Results exhibit except of rest of W. Europe, there is a positive relationship between oil prices instability and unemployment. It should be noted in many area the feedback along with the lag that depends on the ratio of oil cost in national income, reliance level to imported oil, ability of end-users to reduce their consumption and replace it with other fuels, gas consumption quantity in economy, effect of higher prices on other energy resources, government monetary policies adopt when face with oil price swaging and capability of states to apply the vary policies.

Study background look into primary section. Associated literature review in next section, theory and model correspondingly elaborate in third and four sections. And research conclusions bring up in the last.

2. Previous literature

So far, have been worked many empirical literature in the field of the macroeconomic impact of oil price shocks. Hamilton (1983) observed that all but one of the US recessions since World War II have been precede by a dramatic increase in the price of crude petroleum. Thus there showed a strong negative correlation between the growing oil price and the American financial activity. Stuber (2001*)* examines the changing effects of major energy-price shocks on overall economic activity and inflation in Canada. Barsky and Kilian (2004) looked into theoretical explanations for a contractionary result of oil price increases. They concluded turbulence in oil market are likely less than U.S. macroeconomic performance which has been thought. Kilian and Park (2007) considered the role of oil price shocks on the U.S. stock market. They recognized the responses of U.S. real stock returns to oil price shocks differ substantially, depending on the underlying causes of the oil price increase Doğrul and Soytas (2010) investigated the relationship between oil prices, unemployment and interest rate in Turkey based on an efficiency wage model. results suggest that in the long run both the real price of oil and the real interest rate have an effect on the unemployment rate in Turkey of Carruth et al. (1998).Qianqian (2011) have investigated The Impact of International oil price fluctuation on China's economy. The results show that the increase of the

international oil price has a negative effect on China's real output, net exports and the actual monetary supply, and has positive correlation with CPI .It means higher oil price could slow down the economic growth in China, reduce the total exports and push up prices. Guney Hasanov (2013) and investigate the effects of oil price changes on output and inflation for the case of Turkey using monthly time series data for the period 1990:1–2012:3. Results show that while oil price increases have clear negative effects on output growth, the impact of oil price decline is insignificant.

3. Theory

Unemployment is a political and economic factor that all economies are being with. It's essential for politicians to identify reasons which are mostly efficient on unemployment rate. A lot of economists be in agreement oil price comprise one of the most significant agents that may lead to stagnation. For case in point, subsequent to oil shocks in 1973, 1979 and 1980 global economic development was rapidly reduced and unemployment was increased, so that economic growth in members of Organization of Economic and developmental Cooperation was 4.4%, on average limited to 3.6% over the years 1973-1978. Japan economic rate was 11% during 1973-1976 while it diminish to 4% after first oil crisis and same case happened in West Germany and France – economic growth rates were 5.9% and 5% and became 3.1% and 2.4% later than crisis (Maleki, 2010).

In general oil shock would affect the economy in two ways. First impelling the demand, these type occur with interruption and point out their role through adjusting production capacity. Secondly impressing macro demand display by changes in income and leads to uncertainty (Stuber, 2001). It could touch economic events in short time.

On the supply side when oil price is appreciated in economic demand creates disorders in accessibility to raw materials, so it leads to poorer performance of capital, declines the wage and ultimately enhance unemployment. Shockwaves pick up production costs in many industries, so institutions try to become accustomed with some manufacture approaches which are less sensitive on oil and its price. It leads to reallocation of labor between sectors but since the transfer of employees and capital is costly, allocation is not performed quickly so that fall unemployment rate. This action can be effective on unemployment rate in long term (Guney and Hasanov, 2013).

In demand side effect of oil price oscillation leads to income transfer from oil importing countries to oil exporting countries and reduces income of oil importing countries (Doğrul and Soytas, 2010). On the other hand uncertainty created by this situation causes reduction in investment costs and consequently declining in production and economic growth.

Effect of oil on global economy

Generally rising oil price through changes in Terms of Trade transfer flow of income from oil importing countries to exporting ones. The amount impact of oil price growth depend on the oil cost ratio in national income, degree of dependency to imported oil, capability of end-users to reduce their consumption and replace it with other fuels, quantity of gas consumption in economy, effect of higher prices on other energy sources, monetary policies adopt when face with oil price swaging and capability of states to apply the vary policies. Oil exporting companies get benefit from price vacillation but But part of the additional income will be lost due to declining demand from countries that have been falling since the rise in prices.. Higher price of oil leads to inflation, declining non-oil demands and declining investment in oil importing countries. Tax income would be reduced; budget deficit and interest rate would be increased. Additionally oil price instability causes fall in wages with decline in demand so unemployment rate would be increased. On the other hand oil price instability would lead to increase the money demands in oil exporting countries and if money officials fail to increase money supply, interest rate would be increased and eventually investment and production growth rate would be consequently reduced and lead to increasing unemployment rate.

4. Methodology of GVAR model

With the expansion of globalization, and moving toward global village economists apply new models and patterns. It should be noted impulses that occur on the international society also affect the domestic economy. Therefore it's necessary to introduce a model that be able to study domestic sector and household variable as well as international world and other countries economy (Akbari fard and kushesh, 2012).

GVAR approach is briefly explained in two steps. First estimate identification models for each country which includes the internal variables and the average crossover of external variables and their interruptions In the small dimension. In the next step estimated coefficients are solved for specific models of each country in a macro system that can be used for different goals such as functions analysis, variance analysis and investigation of efficient and non-efficient variables. It is also possible to use the variables of livestock as well as exogenous variables such as oil prices in the model and examine the effect of oil shocks on the model. Usually, in these models, with increasing the coefficients apply the interruptions of variables in order to estimate correctly. Therefore, two or three interval of variables use in the model. The number of data should be high and it is better to use monthly or seasonal data. (Akbari fard and kushesh, 2012).

GVAR model was introduced by Pesaran, Shorman and Winner (2004) for the first time and was developed in various economic fields. In their study, were looking for six main economic variables: GDP, consumer prices, nominal money supply, nominal price parity, nominal exchange rate and nominal interest rates in different countries, and how each variable varies from impulse domestic and international.

Calculation

Although estimation base on although the estimate is based on a country-by-country study, but the final model solve for world or large number of countries assuming all variables are endogenous. Primary equation of estimation is as follows:

$$A_i, z_{it} = h_{i0} + h_{i1}t + A_{i1}Z_{it-1} + A_{it}Z_{it-2} + U_t \qquad i = 0,1,2,...,N$$

$$Z_{it} = \begin{pmatrix} x_{it} \\ * \\ x_{it} \end{pmatrix}$$

$$A_{i0} = \left(I_{ki} - B^*_{i0}\right)$$

$$A_{i1} = \left[B_{i1}, B^*_{i1}\right]$$

$$A_{i2} = \left[B_{i2}, B^*_{i2}\right]$$

Xi and X^*_{it} are respectively domestic variables and foreign countries variables. B_{i1} and B_{i2} are matrix with sizes $K_i \times K_j$ relevant to delayed domestic variables and B^*_{i1}, B^*_{i0} and B^*_{i2} matrix sized $K_i \times K^*_i$ relevant to coefficients of foreign variables of country I and vector U_{it} indicates $K_i \times 1$ for disorders of each country(Akbari fard and kushesh, 2012).

It has been observed in empirical applications that X^*_{it} is calculated as the weighted average of the trade of foreign countries with the country concerned and multiplied by the corresponding variables in other countries. So we have:

With $w_{it} = 0$ $\qquad x^*_{it} = \sum_{j=0}^{N} w\ ijx\ it$

For example production and price variables in weighted patterns through trade rate between domestic country and other countries:

$$y^*_{it} = \sum_{i=0}^{N} w_{it} y_{it}$$

$$P^{s*}_{it} = \sum_{j=0}^{N} w_{it} p^s_{jt}$$

As w_{it} is the share of the country j in the trade of country i. Another way of weighting (contributing to external variables) is to use the weight of gross domestic product. It means The share of the country concerned is calculated from world production or region production X^*_{it}.

Matrixes A_{i0} ، A_{i1}، A_{i2} are with sizes ($K^*_i + K_i$) × K_j and vector A_{i0} is for K_i. Also we have:

$$z_{it} = W_i \times X_i$$

As $x_t = (x'_{0t}, x'_{1t}, ..., x'_{Nt})'$ is vector k×1 Which includes all the system intrinsic variables and matrix W_I sized $(K^*_i + K_i) \times K_j$ that shows trade weight of W_{ij}. Hence with above equation:

$$A_{i0} W_i x_t = h_{i0} + h_{i1} + A_{i1} W_i x_{t-1} + A_{i2} W_i x_{t-2} + U_{it}$$

By simplifying the system we will have:

$$H_0 x_t = h_0 + h_1 t + H_1 x_{t-1} + H_2 x_{t-2} + u_{it}$$

$$H_j = \begin{matrix} A_{0j} W_0 \\ A_{1j} W_1 \\ \vdots \\ A_{Nj} W_N \end{matrix} \qquad h_j = \begin{bmatrix} h_{0j} \\ h_{1j} \\ \vdots \\ h_{Nj} \end{bmatrix} \qquad u_t = \begin{bmatrix} u_{0t} \\ u_{1t} \\ \vdots \\ u_{Nt} \end{bmatrix}$$

For j= 0, 1,2, as matrix $H_.$ is a non-unitary matrix which depends on the commercial weights and the estimated parameters j=0,1. Now GVAR model approximate:

$$x_t = a_0 + a_1 t + G_1 x_{t-1} + G_2 x_{t-2} + v_t$$
$$AS: v_t = H_0^{-1} u_t, a_j = H_0^{-1} h_j, G_j = H_0^{-1} H_j$$

As is clear, we did not apply any constraint on the covariance matrix $\sum = E(v_t v'_t)$. A vector $k_i * 1$of estimated residual $\hat{u}_{it}$ attain for each country that have already calculated and components of the covariance matrix are freely determined by a matrix $\hat{\Sigma}_{it} = \frac{\sum_t \hat{v}_{it} \hat{v}'_{it}}{T}$ whose size guess $k_i * k_j$. (Akbari fard and Kushesh, 2012).

Then after estimation of the equations by using moving response functions it can be predicted that how would be the responses of different variables to movements and also the portion of each movement in the analysis table of covariance could be demonstrated (Akbari fard and Kushesh, 2012).

A GLOBAL VAR MODEL

Table 1

Countries and Regions in the GVAR Model

United States of America	Eurozone	Latin America
Japan		
China	Germany	Brazil
United Kingdom	Italy	Mexico
	Spain	Argentina
Other Developed	Austria	Chile
Economies	Belgium	Peru
Canada	New Zealand	
Australia	France	
New Zealand	Finland	
Rest of Asia	The rest of Europe	The rest of the world
Korea	Sweden	
Indonesia	Switzerland	South Africa
Thailand	Norway	Turkey
Philippines		
Malaysia		
Singapore		

Variables

This study includes in five domestic variable (endogenous), five foreign variables (exogenous) and a global variable. Each of the variables behaves in an internal state only in one country. In the following, we describe the various variables used in the model.

Domestic variables

GDP, inflation, interest rates on short-term and long-term interest rates, unemployment and five domestic variables entered in the model. The five aforementioned variables are structured as follows:

$$y_{it} = \ln(GDP_{it}) \qquad \pi_{it} = p_{it} - p_{it-1} \qquad p_{it} = \ln(CPI_{it})$$

$$r_{it}^{s} = 0.25\ln(1+R_{it}^{s}/100) \qquad r_{it}^{L} = 0.25\ln(\frac{1+R_{it}^{L}}{100})$$

$$UN = \ln(u_n - \frac{u_{n-1}}{u_{n-1}})$$

Where GDP_{it} is the real Gross Domestic Product at time for country j, $CPI_{it}$is the Consumer Price Index, r_{it}^{s} (r_{it}^{l}) is the short-term (long-term) interest rate and UN is the unemployment rate.

Foreign Variables

GDP, inflation, interest rates on short-term and long-term interest rates, unemployment, and five foreign variables entered in the model. The five aforementioned variables are structured as follows:

$$y_{it}^{*} = \sum_{j=0}^{24} w_{it} y_{it} \qquad \pi_{it}^{*} = p_{it}^{*} - p_{it-1}^{*} \qquad UN = \ln(u_n^{*} - \frac{u_{n-1}^{*}}{u_{n-1}^{*}})$$

$$r_{it}^{s*} = \sum_{j=0}^{24} w_{ij} r_{jt}^{s} \qquad r_{it}^{i0} = \sum_{j=0}^{24} w_{ij} r_{it}^{i*}$$

The trade weights, w_{ij}, are computed as a three-year average to reduce the impact of individual yearly movements on the weights:

$$w_{ij} = \frac{T_{ij,2006} + T_{ij,2007} + T_{ij,2008}}{T_{i,2006} + T_{i,2007} + T_{i,2008}}$$

Where T_{ijt} is the bilateral trade of country j with country j during a given year t and is calculated as the average of exports and imports of country i with j, and $T_{it} = \sum_{j=0}^{N} T_{ijt}$(the total trade of country i) for t = 2006; 2007; 2008; in the case of all countries Lag Order Selection, co- integrating Relations.

Global variable

The price of oil is as global variable.

Lag Order Selection, Co integrating Relations:

Prior to estimation, we need to determine the lag order of the domestic and foreign variables, p_i and q_i. In this article, we use the Akaike Information Criterion (AIC) to the underlying.

Unrestricted VAR^{*} models. We apply the maximum lag orders to $P_{max} = 2$ and $q_{max} = 1$. In the following table, the selected VAR^{*} orders are reported.

Table 2

Lag Orders of the Country-specific VARX*(p,q) models together with the number of co integrating relations (r)

Country	p	q	co integrating relationships (r)
Argentina	٢	١	٢
Australia	٢	١	٢
Brazil	٢	١	٢
Canada	٢	١	٢
China	٢	١	١
Chile	٢	١	١
Euro Zone	٢	١	٢
Indonesia	٢	١	١
Japan	٢	١	٢
Korea	٢	١	٢
Malaysia	٢	١	٢
Mexico	٢	١	١
Norway	٢	١	٣
New Zealand	٢	١	٤
Peru	٢	١	٢
Philippine	٢	١	٢
South Africa	٢	١	٢
Singapore	٢	١	٢
Sweden	٢	١	٣
Switzerland	٢	١	٣
Thailand	٢	١	٢
Turkey	٢	١	٢
UK	٢	١	١
USA	٢	١	٣

Notes: The number of co integrating relations(r_i) are Selected using the trace test statistics based on the 95% Critical values from MacKinnon (1991)

Testing the Weak Exogeneity Assumption

Only foreign output in the Canadian model, the inflation in the Malaysia, Peru model, foreign short-term in the model for Peru, long- term interest rates in the model for Korea and china cannot be considered as weakly exogenous. This assumption is also rejected for the unemployment in the Switzerland model. However, considering the significance level assumed here, even if the weak exogeneity assumption is always valid, we would expect up to 7 rejections, 5% of the 141 tests. Therefore, overall, the available evidence in Table3 supports our treatment of the foreign and global variables in the individual VARX* models as weakly exogenous.

Table 3

F-Statistics for Testing the Weak Exogeneity of the Country-Specific Foreign Variables, Oil Prices, and Oil Production

Test for Weak Erogeneity at the ٥٪ Significance Level								
Country	F test	Fcrit_٠,٠٥	Ys	ST	Rs	LRs	UNs	Poil
Argentina	F(٢,٧٩)	٣,١١٢٢١	٠,٩٣٥٢٨١	٠,٩٩٨٥٤	٠,٢١٢٩.١	١,٨٩١٨٤٧	١,١.١٧٤٢	٠,٣.٨٧٣٧
Australia	F(٢,٧٧)	٣,١١٥٣١١	٠,٤٧١٤٥٢	٠,٦٥٣٥٧٦	٢,٥٨٥١٥٨	٠,١٦٥٥.٣	١,٧٧٥٧٦١	٠,٠٩٧٥٩٩
Brazil	F(٢,٧٩)	٣,١١٢٢١	٠,٠٠٦٩٨٨	١,٣٤٢٣٩١	٠,١٦٥.٦٢	٠,١٣.٦٢٣	١,٢١٣٣٨٧	٠,٣٤١٧٦٩
Canada	F(٢,٧٧)	٣,١١٥٣١١	٣,٤٧٠١٠٦*	١,١٥٢٤٥٧	٠,١١٢٤٩٢	٠,٥٢١٨١٣	١,٧٧٧٠٨٢	٢,١٩٨٧٤٤
China	F(١,٨٠)	٣,٩٦١.٣٥٢	٠,٠٠٠.٣٢	٠,٤٠٨٥٦٢	٠,٦٩٦٧٨٨	٥,٣٨٦٨١٦*	٠,١١.٣٠.١	٠,٩٢٥٧٣٢
Chile	F(٢,٧٨)	٣,٧٢١٧٨٣	٠,٤٤٤٤٤٦	١,١٣٢١٢٧	١,٦٨٩٦١٤	١,٣٤١.٤١	٠,٣٧١٥١٦	٠,٢٤.٧٣٤
Euro Zone	F(٢,٧٧)	٣,١١٥٣١١	٠,٩٠.٥٣٢	١,٤٩٤٧٤٢	٢,٠٢١٣٣٥	٠,٧٥٨٤٦١	٠,٢٥٢٨.٥	٠,٨٥٦.٤٦
Indonesia	F(١,٨٠)	٣,٩٦١.٣٥٢	٠,٠٠٠.٣٩٤	٠,٣.٦٥٧١	٠,٠.١٤٩٤٧	٠,١٩٢٤٣٩	٠,٠.٤.٦٧٥	٠,٩٧٥٩٧٨
Japan	F(٢,٧٧)	٣,١١٥٣١١	٠,٧٣١٦٣	١,٢٨.٩٦٩	٠,٣٨٦٤٢١	٠,٢٠٢٣٧٧	٠,٩٧.٣.٥	٠,٨.١٤٢٤
Korea	F(٢,٧٧)	٣,١١٥٣١١	٠,٤٦٩٨٤٢	١,٦٧٣٣.٤	٠,٠.٦٧٣٤	٧,٢١٨.٧١*	٠,٢٦٩٤٥	٠,٠.٢٠٠٦
Malaysia	F(٢,٧٩)	٣,١١٢٢١	٢,٣١٣٣٩٣	٦,٨٨٨.٩٤*	٢,٦٣٦٤٨٩	٠,٤١٦٢٦٩	٠,٩٢٢١٧	٠,٠.٩٤٥٤٨
Mexico	F(١,٨٠)	٣,٩٦١.٣٥٢	٠,٠.١.٤٧٤٦	٠,٠١٧٩٣٥٨	٠,٧٦٧٢.٨	٢,١٨٤٩٥٢	٠,٠.٦.١١١	٠,١١٢٥٦٥
Norway	F(٢,٧٦)	٣,٧٢٤٩٤٤	٠,٢٣٧٢	٠,٨٢.٦٧٧	١,٢.٧٥٥٦	٢,٠٧٤٨١	١,٢١٩٩٤	٠,٤٩٧٩.٢
NEW Zealand	F(٤,٧٥)	٢,٤٩٣٦٩٦	١,١٦٤١٤٤	١,٢٤٣٣٣٧	٠,٦٦٠.٧٨	٠,٨٣٤٤٣	١,٨٢٤٢٩٦	٠,٦٦٤٨٧١
Peru	F(٢,٧٩)	٣,١١٢٢١	٠,٣٨٩٩٤٥	٤,٤١٨٩٦٨*	٣,٣٢٤٨٨١*	١,٢١٩١٤١	٠,٢٣٢.٦٣	٠,٠.٩٣٨٤
Philippine	F(٢,٧٩)	٣,١١٢٢١	٠,٧.٧٧٢٧	٠,٣٤٧١٣٢	١,٣٢٨٨٥٢	٠,٢٧٤٣١٤	٠,٨٩٨٩.٣	٠,٦١٥٣٢٨
South Africa	F(٢,٧٧)	٣,١١٥٣١١	١,٤٤٩٦٣٣	١,٨٥٦٢٩٥	١,١١٩٣٢٢	٠,٦٤٧٤٣٥	٠,٠.٢٨٨٥	١,٤٦٥٤٢١
Singapore	F(٢,٧٩)	٣,١١٢٢١	١,٥٩١١٨٩	٠,٢٦٩٣١١	١,١٥٥.٨١	٢,٩٥٥٣٢٨	١,٧.٥٢٩٣	٠,٥٣.٦٤١
Sweden	F(٢,٧٦)	٢,٧٢٤٩٤٤	٠,١٣٨٤٢٨	٠,٢٣٦١٥٧	٠,٨٤٤.٦٦	٠,٢٣٣٣٤٤	١,٣٢١٥٥٨	٠,٤١٦٩.٥
Switzerland	F(٢,٧٦)	٢,٧٢٤٩٤٤	٠,٤٥٥٦١٧	٠,٣١.٢٨١	٠,٧٨٣١.٣	٠,٣٧٣٣٤٣	٣,٥٤٣٩٨*	١,٢٢٢٤٦٥
Thailand	F(٢,٧٩)	٣,١١٢٢١	١,١٥٥١٧٣	٠,٩٨٧٣٦٨	٠,٣٢١١١	٢,٥٨٢٧٠١	٠,٠.١٥٤٣١	١,٣٢١٣٣٥
Turkey	F(٢,٧٩)	٣,١١٢٢١	١,٤٢٧٨٣٧	٢,٥٧٨١٨٢	١,٣١٠.٩٩	٢,٦١٣١١٦	٠,٠٣٢٠.٣١	٠,٠.٥٩٥٦٨
UK	F(١,٧٨)	٣,٩٦٣٤٧٢	٠,٠٠٠.١٦٣	١,٥٩٨٨١٣	٠,٦٦١١٧٩	٠,٠.٢٣٦٥٦	٠,٢٢.٧٩	٠,٥٢٤٦٩٩
USA	F(٢,٧٧)	٢,٧٢٣٣٤٣	٠,٨٩.٢٢٩	٠,٣٨١٢٢٧			١,٤٢٥٢٩٣	

Testing for structural defeat

Table 4 presents the number of rejections of the null hypothesis of parameter constancy per variable across the country-specific models at the 5% significance level. Overall, it seems that most regression coefficients are stable, however, the results vary considerably across different tests. In the case of the two PK tests, the null hypothesis is rejected between 8.33-12.04% of the time. For the NY, MW, QLR; and APW tests on the other hand, we note that the rejection rate is much larger, between9.44-24.07%. The QLR and APW rejection rates, for the joint null hypothesis of coefficient and error variance stability, are particularly high with 50 and 47 cases respectively out of 179 being rejected. However, looking at the robust version of these tests, we reminder the refusal rate falls considerably between

10.1% and 18.4%. Therefore, although we find some evidence for structural instability, it seems that possible changes in error variances rather than parameter coefficients is the main reason for this. We deal with this issue by using bootstrapped means and confidence bounds when undertaking the impulse response analysis.

Table 4

Number of Rejections of the Null of Parameter Constancy per Variable across the Country-specific Models at the 5 percent Significance Level

	y	π	un	r_s	r_l	Total
PK_{sup}	۳	۲	۳	۴	۱	۱۳(۱۳,۰۶)
PK_{msq}	۶	۱	۱	۰	۱	۹(۸,۲۲)
Nyblom	۲	۶	۱۰	۳	۵	۲۶(۲۶,۰۷)
Robust Nyblom	۳	۵	۵	۵	۳	۲۱(۹,۴۴)
QLR	۷	۱۱	۱۳	۱۳	۶	۵۰(۴۶,۲۹)
Robust QLR	۱	۵	۳	۰	۳	۱۲(۱۱,۱۱)
MW	۴	۹	۹	۵	۵	۳۲(۲۲,۴۲)
Robust MW	۲	۵	۵	۰	۳	۱۵(۱۳,۸۸)
APW	۶	۱۰		۱۳	۱۲۶	۴۷(۴۳,۵۱)
Robust APW	۱	۵	۳	۰	۳	۱۲(۱۱,۱۱)

Notes: The test statistics PKsup and PKmsq are based on the cumulative sums of OLS residuals, NY is the Nyblom test for time-varying parameters and QLR, MW and APW are the sequential Wald statistics for a single break at an unknown change point. Statistics with the prefix 'robust' denote the heteroskedasticity-robust version of the tests. All tests are implemented at the 5% significance level. The number in brackets is the percentage rejection rates

5. Conclusion

As mentioned, in general oil shock can affect the economies in two ways. First impelling the demand, these type occur with interruption and point out their role through adjusting production capacity. Secondly impressing macro demand display by changes in income and leads to uncertainty. It could touch economic events in short time.

In demand side effect of oil price oscillation leads to income transfer from oil importing countries to oil exporting countries and reduces income of oil importing countries. Additionally oil price instability causes fall in wages with reduction in demand. On the other hand oil price modulation would lead to increase the money demands in oil exporting countries and if money officials fail to increase money supply, interest rate would be increased and eventually investment and

production growth rate would be consequently reduced and lead to increasing unemployment rate.

Results demonstrate except of the rest of W. Europe, there is a positive relationship between oil prices modulation and unemployment. It should be noted in many area the feedback along with the lag that depends on the ratio of oil cost in national income, reliance level to imported oil, end-users ability to reduce their usage and substitute other sources, gas consumption quantity in economy, effect of higher prices on other energy sources, monetary policies adopt when face with oil price swaging and capability of states to apply the vary policies.

In the following, impulse response functions that examine the impact of oil price shocks inflicted on the unemployment variable, both as separate countries and regions, in the next forty have been indicated.

Impulse response functions of effects of oil shocks on unemployment variable in terms of countries.

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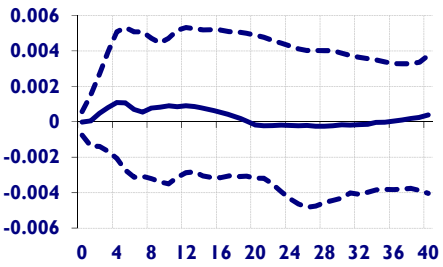
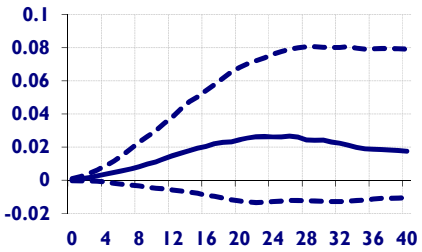
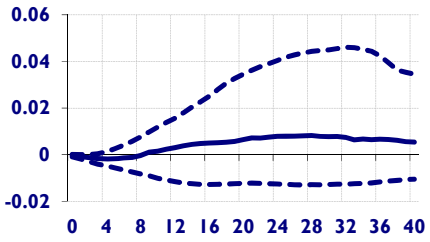


Japan UN



UK UN



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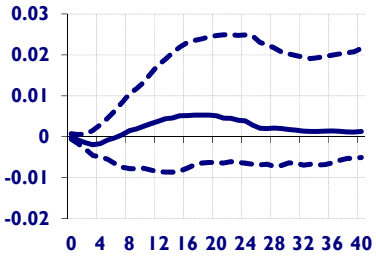

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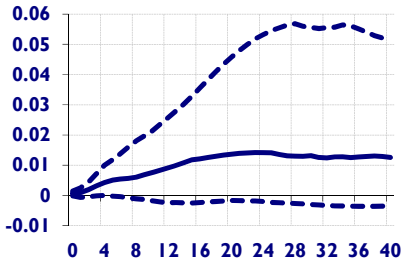
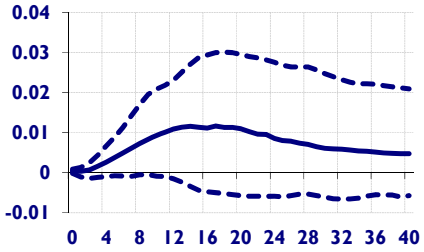


Canada UN



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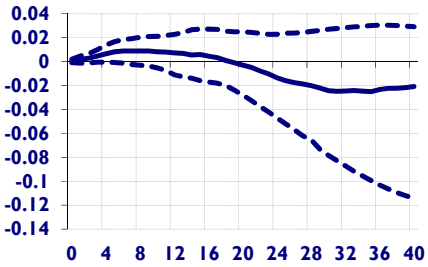
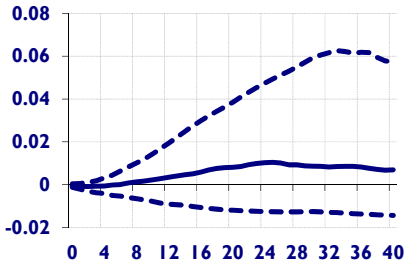


Turkey UN



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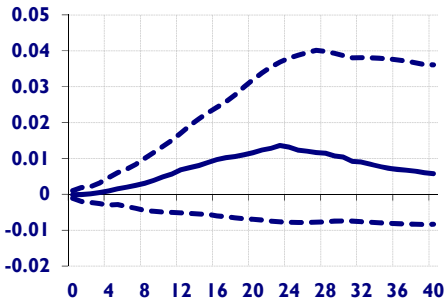

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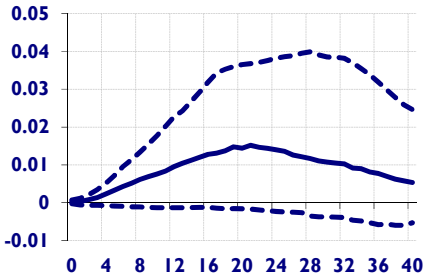

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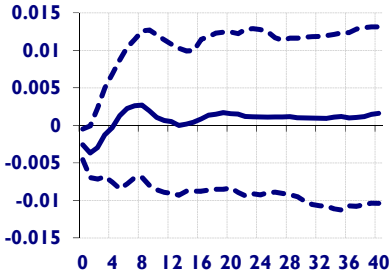

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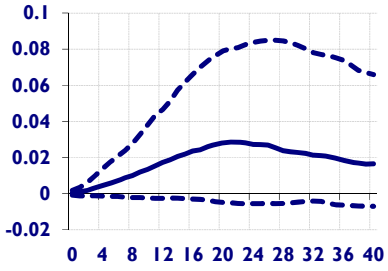
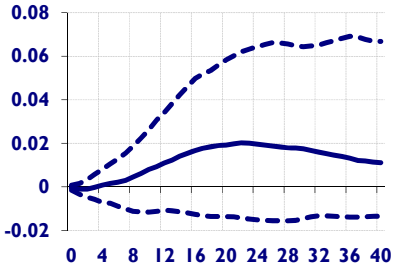
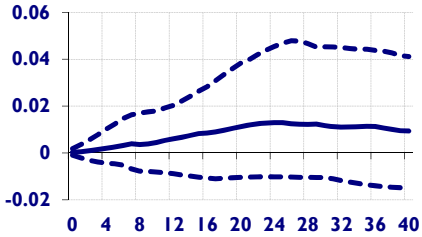


Chile UN



Argentina UN



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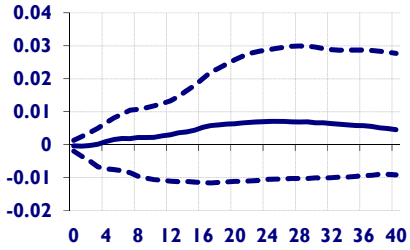

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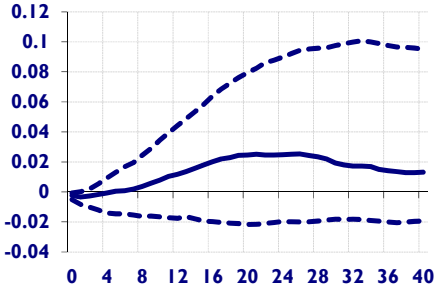

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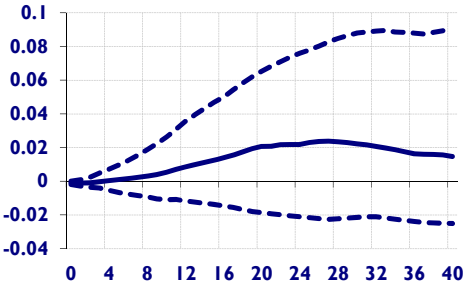

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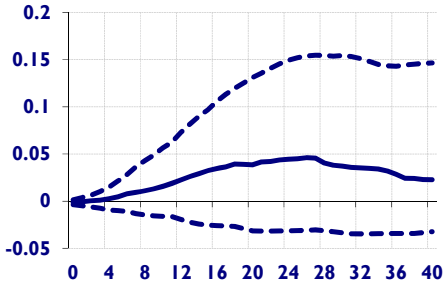

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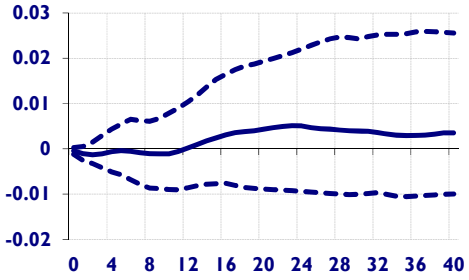

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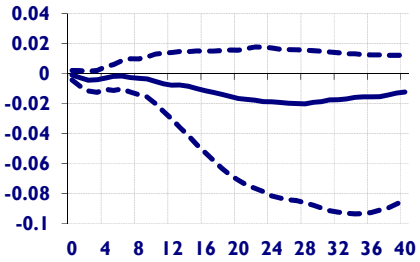

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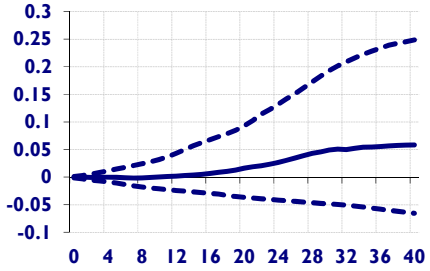

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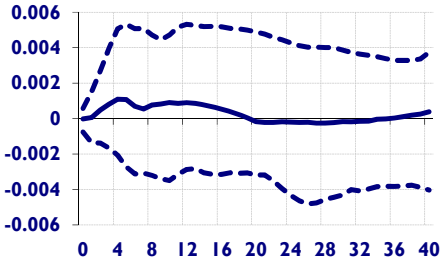

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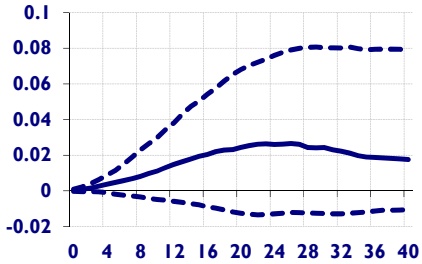

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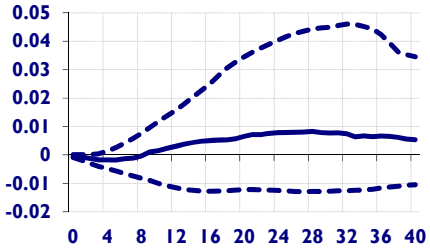

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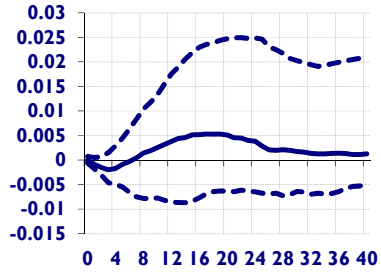

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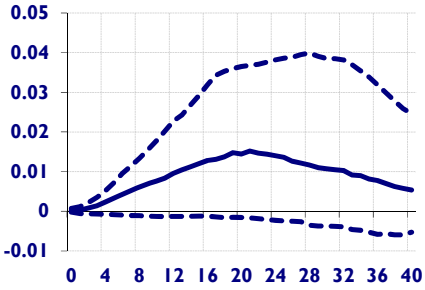

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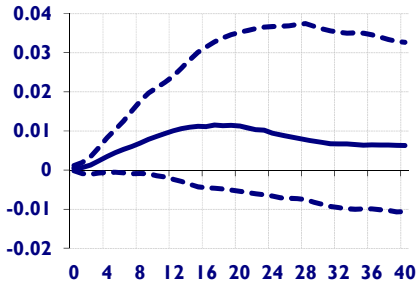
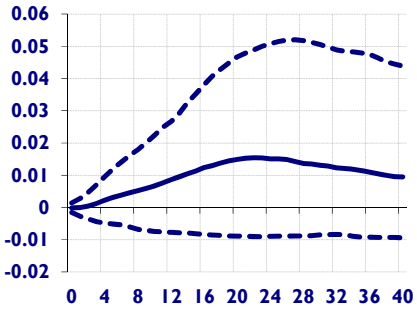


LA UN



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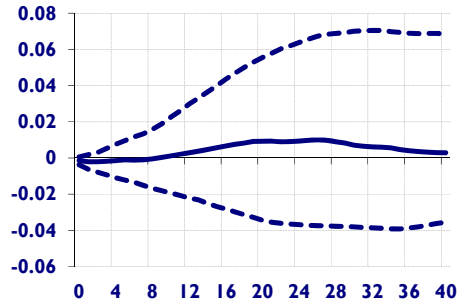
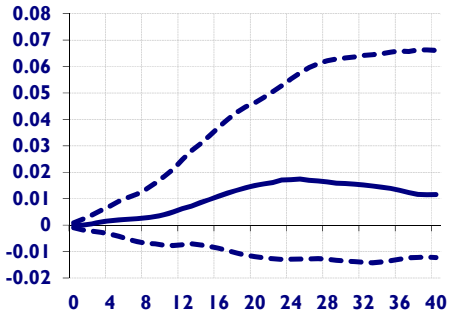
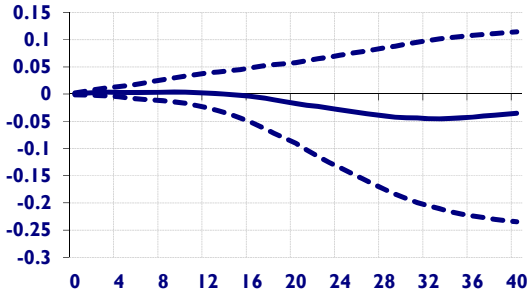


Rest World UN



Rest Europe UN



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